

ART. XV.—*A revision of the genus Pultenaea, Part 1.*

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(With Plates XIII., XIV. and XV.).

[Read November 6th, 1919].

It is only natural that in large genera more confusion is likely to occur than in small ones, and some time ago Professor Ewart advised me that a general revision of the genus *Pultenaea* would probably yield profitable results, and was indeed urgently necessary. The results of the first part of this investigation, based on the examination of the material at the National Herbarium, Melbourne, and of specimens received from the Government Botanists of the other States, are here given.

The genus *Pultenaea* is confined to Australia, and comprises 92 acknowledged species. Seventy-five species are described in Bentham's *Flora Australiensis*, two of which have been transferred to other genera, and one reduced to a variety. The species since described number 20, comprising those set up by Mueller (3), Tate (2), Black (2), Maiden (3), Maiden and Betche (2), Bailey (1), Baker (2), Scott (1), Andrews (1), Pritzel (1), and Regel (1). No labelled specimen of either of the last three is in the Herbarium.

The approximate distribution is—Queensland, 11 species; New South Wales, 45; Victoria, 37; Tasmania, 13; South Australia, 22; and Western Australia, 22.

About half of the species are confined to one State; about 20 are recorded for two States, 10 for three States, and 6 species are widely spread—four States. As with other genera, few of the Western Australian species—two—occur east of the limits of that State, one of which extends to South-West Victoria. It is worthy of note that in the *Flora of the Northern Territory*, Ewart and Davies, 1917, the genus is not mentioned, and that very few records of *Pultenaea* exist for Western Australia outside the south-western district of that State.

While attempting a revision of the genus in which, judging by evidence of labelled and unlabelled specimens in the National Herbarium, much confusion exists, it is not claimed that finality can now be reached with regard to certain groups, for the occurrence of forms that seem to connect the members of those groups presents much difficulty. Considering the varying forms for example, of the group known under *Eupultenaea*, an advocate for

reduction of species could place five or six, including *P. stricta*, *P. retusa*, *P. Gunnii*, under one species name, and cultural experiments may yet prove that they are not all valid species, but few would be bold enough to make such a drastic reduction.

Even if it were proposed to unite, say, the three mentioned, which certainly are very close as regards floral structures, the work of the great systematists, Bentham, Smith, Hooker, Mueller and others, would be discredited, and their ideas of what constitute a species set at naught. While recognising most of the species set up by these great workers, one's aim must be to realise their system, and to follow it in the light of later discoveries of forms unknown to them. At the same time it is inevitable that in all such revisions of large genera, additional species must be set up, consisting for the greater part of certain forms which have in error or for convenience been placed as varieties, but which, if they had been more fully considered by the pioneers of systematic botany, would have been given specific rank. The author, recognising the fallacy of multiplying species unnecessarily, has in doubtful cases allowed the varietal rank to stand. It is known that species may show variations according to climatic and soil conditions, and it may be conceded that the variations will be greatest or most likely to occur in the first named, and least in the last-named of the following:—Habit; colour of flower; size, shape and texture of leaf; size and shape of stipules; arrangement of flowers; size and shape of bracts, bracteoles, calyx, ovary and seeds. So that in the case of *Pultenaea* a variation of ovary, whether stipitate or sessile, villous or glabrous, shape of calyx, position and shape of bracteoles and bracts, are of more importance in determining a species than the habit, the shape and size of the leaves, or the colour or size of the corolla. In other words, if ovary, calyx, bracteoles and bracts are similar, a good deal of variation in habit or in leaf can be allowed within the limits of a species, whereas if habit, leaves, corolla and stipules are similar, a marked difference in the reproductive organs just named will justify the setting up of a species.

In the diagnostic drawings this has been kept in view, and they include besides sketches showing shape and size of leaves and stipules, drawings showing only the shape, size and relative position of calyx, bracteoles and bracts. No attempt is made to show the marginal curving of the leaf, or the nature of the indumentum.

Regarding the corolla, one has only to read in descriptions the oft-repeated "Standard twice as long as calyx," or "nearly

twice," "lower petals shorter"—this, by the way, is included in the description of the genus—"keel dark coloured," etc., to feel how unimportant these parts are in determining a species of the genus. The fact that so many species of *Pultenaea* have been described in the absence of pods seems to show that these are non-essential, though in the case of a plant without stipules, and with the bracteoles well away from the calyx tube, the examination of ripe seeds would be necessary to determine the genus.

### Section EUPULTENAEA.

#### *Pultenaea daphnoides*, Wendl.

Varies much in foliage, the normal plant having leaves cuneate-oblong, with a fine straight point. Flowers in dense terminal heads, and bracteoles well up on the calyx

*var. obcordata* Bth. has truncate leaves with a prominent point. Victoria, Tasmania, South Australia.

*var. parviflora*, n.v.

This has been placed under *daphnoides* and *retusa*, and among doubtful forms. It differs from the type in having cuneate-oblong leaves 4 to 6 lines long without a point, margins flat or slightly incurved, mid-rib obscure above.

Upper Murray district, C. French, Junr., 1886. Wildflower Show, 1919, no loc.

#### *Pultenaea stricta*, Sims.

A smaller shrub than *P. daphnoides*, with smaller leaves, ovate-oblong, with recurved margins, and a small recurved point. Bracts numerous, glabrous, deciduous, with rounded point, outer ones bifid and shorter. Bracteoles high on the calyx, usually glabrous. I can find no constant variation from the type in *var. incurvata*, Ewart, from Frankston.

#### *Pultenaea Maidenii*, Reader.

This differs from *P. stricta* in its long-pointed hairy bracteoles, fixed near the base of the calyx. The lower lobes are narrow, longer than the tube, and almost setular pointed. The leaves are cuneate, thin and often conduplicate. Its nearest affinity is *P. largiflorens*, F.v.M.—the broad-leaved form from South Australia—from which it differs in having narrower cuneate leaves and a very different calyx. It should retain specific rank.

Pipe Head Waterworks, Hamilton, Vic., Collected by the writer, 11/1904.

*Pultenaea capitellata*, Sieb.

A species bearing a remarkable general resemblance to *P. pycnocephala*, F.v.M., and variously placed with that species, or with *P. stricta*, in which latter Bentham wrongly included it.

Its minute stipules and high-axillary bracteoles place it right away from Mueller's species, although there is a specimen labelled by him "*P. pycnocephala* F.v.M." From *P. stricta* it can be separated by its flower heads, solid and almost globular, and very persistent bracts, broadly ovate, densely covered with silky hairs, except at the margin, bifid, with a narrow median point. Calyx lobes and bracteoles are setaceous. Leaves cuneate, slightly pointed. The specimen, "Port Jackson, Sieb, n. 313," Fl. Aust., p. 113, is this species, and not the plant figured by Sims, Bot. Mag. Sieber's name should be retained for it.

Braidwood District, Twofold Bay, N.S.W., and East Gippsland, Vic.

*Pultenaea pycnocephala*, F. v. M.

A remarkable species, with broadly-ovate coriaceous leaves, silky below, and with flowers in dense globular heads, covered with imbricate, silky villous, persistent bracts. The bracteoles are long, very silky, villous, and are fixed quite under the calyx.

Bluff Mount, Poverty Point, Tenterfield, N.S.W.

*Pultenaea retusa*, Smith.

A species with calyx and bracteoles like those of *P. stricta*, but with shorter bracts, more falcate upper calyx lobes, and leaves linear to cuneate, sometimes emarginate.

Var. *linophylla*, Benth. with longer leaves and longer calyx. Port Jackson.

Var. *longifolia*, F.v.M., with leaves up to 1½ inches.

Specimens from E. Gippsland, with cuneate leaves, almost bilobed, 2 or 3 lines long, seem to be included under the description in Bentham.

Specimens from Hazelbrook, N.S.W., Hamilton, and from Twofold Bay, show leaves cuneate-oblong to obovate.

Queensland, New South Wales and Eastern Victoria.

*Pultenaea Benthami*, F.v.M.

Recorded only from the Grampians, Vic., with calyx, bracts and bracteoles like those of *P. daphnoides*, but with rigid, almost linear, acute, or pungent leaves.

*Pultenaea Millari*, Bailey.

A species with silky cuneate-ovate leaves, and flowers solitary in the upper axils.

Stannary Hills, Herberton, Qld.

var. *angustifolia*, n.v.

From Eidsvold, Qld., Dr. Bancroft, are specimens, which differ only from the type in having leaves narrow-lanceolate, with a more prominent point.

*Pultenaea myrtoides*, Cunn.

With leaves like those of *P. Millari*, but nearly glabrous. Flowers are in dense terminal, globular heads, with boat-shaped bracteoles fixed rather low on the calyx.

New South Wales, Queensland.

*Pultenaea polifolia*, Cunn.

A Queensland species, with hairy linear leaves, and remarkably long petioles, and with bracteoles linear-subulate, fixed about the middle of the calyx tube. Flowers in dense terminal heads.

*Pultenaea petiolaris*, Cunn.

A species with leaves linear to lanceolate, with a point slightly recurved. Its calyx lobes are fringed with silky hairs, as are also the keeled bracteoles fixed well up on the calyx tube.

*Pultenaea mucronata*, F.v.M.

= *P. polifolia*, Cunn. var. *mucronata*.

This plant was described from specimens from Ovens River, Vic., and differs from *P. polifolia* only in having broader leaves, more villous branchlets, and less keeled bracteoles set rather lower on the calyx tube. Bentham says, "This may possibly prove to be a broad-leaved form of *P. polifolia*." In the light of evidence of intermediate forms, including those from Batlow and Nungatta, N.S.W., the species name, *mucronata*, can be suppressed, and all the forms included under *P. polifolia*.

Specimens from Blackheath, N.S.W., with cuneate mucronate leaves, and setaceous bracts, stipules and calyx lobes, can provisionally remain under var. *mucronata*.

*Pultenaea Gunnii*, Benth.

Although very variable in foliage, the small size of the calyx, bracts and bracteoles, and the constantly recurved edges of the leaves, keep it quite distinct from *P. stricta*. "The larger leaved forms can always be distinguished from *P. striata* (*stricta*?) by the very much smaller bracts," (Bentham). These are scarcely ever longer than the very short pedicels, and the bracteoles are minute, of a dark colour, and set well up on the calyx. As regards flowers, it is nearest to *P. microphylla*, but that species has cuneate to linear-cuneate leaves.

var. *planifolia*, F.v.M., a broad leaved form from Badger Head, Tas.

var. *flava*, Ewart, from Wandin, Vic., has light yellow flowers.

One or two forms which seem to connect this with *P. stricta* remain for further study.

*Pultenaea microphylla*, Sieb.

A species from New South Wales, with linear-cuneate leaves, and a smaller calyx than the last-named species. Tenterfield specimens have almost linear leaves, with lower face almost closed.

var. *cuneata*, Benth; leaves are cuneate-truncate, 3 to 4 lines long, bearing some resemblance to *P. largiflorens*, F.v.M., which latter may be distinguished by the large upper lip of its calyx.

New South Wales, Queensland.

*Pultenaea cinerascens*, Maiden and Betche.

= *P. microphylla* var. *cinerascens*.

As the only difference between this plant and *P. microphylla*, Sieb. is that of habit and foliage, it should not have received specific rank. Specimens of *P. microphylla* from Tenterfield show almost linear leaves. In Proc. Roy. Soc., N.S.W., XXXIII. 310, the authors admit that there is no marked difference of flowers or inflorescence, and that Gilgandra and Scone specimens are links connecting the two alleged species. All these forms can now well be grouped under Sieber's species name.

Warialda, N.S.W.

*Pultenaea Drummondii*, Meiss.

A Western Australian species, with shining yellowish scarious bracts, and a peculiar calyx, with upper lobes rounded, and united into a broad emarginate lip.

*Pultenaea Skinneri*, F.v.M.

A Western Australian species, with recurved mucronate leaves, reversed on the stem, and with a large calyx 4 lines long, with bracteoles nearly as long, fixed well below the calyx tube.

*Pultenaea Hartmanni*, F.v.M.

A Queensland species, with leaves between those of *P. scabra* and *P. retusa*, but with minute stipules, remarkably small bracteoles fixed at the base of the calyx, and with longer calyx lobes than those of *P. retusa*.

*Pultenaea pinifolia*, Meiss.

A Western Australian species, with narrow linear leaves, spreading stipules, and very deciduous bracts and bracteoles, the latter being long, and fixed well below the calyx tube.

*Pultenaea pedunculata*, HK.

A prostrate shrub often matted, with flowers on filiform pedicels, often half inch long—in some Port Lincoln specimens one inch long. The calyx is almost glabrous, with acuminate lobes, and the bracteoles are nearly as long, linear and below the calyx tube.

South Australia, Victoria, New South Wales, Tasmania.

[As there is some discrepancy between the description of this species in Bentham's *Flora*, and that given in the *Botanical Magazine*, the matter will be discussed when dealing with *Pultenaea Ausfieldii*, Regel, one of the forms that appear to have been included under *P. pedunculata*].

*Pultenaea conferta*, Benth.

A Western Australian species, with short, linear, crowded leaves, and a remarkable calyx, with the upper lobes large and free, and the lower ones very much smaller.

*Pultenaea pauciflora*, Scott.

A Western Australia species, with long white hairs on the young foliage, and with incurved leaves linear-lanceolate, flat, but with

thickened or slightly recurved margins, with mid-rib scarcely prominent below, fine pointed. The calyx has equal lobes, and the bracteoles are free from the calyx. It belongs to section *Empul-tenaea*, near *P. Drummondii*.

Narrogin Exp. Farm, Stoward.

*Pultenaea scabra*, R.Br.

Three very divergent forms have been united by Bentham in this species:—

- (a) R. Brown's *P. scabra*, from the Blue Mountains (Sieb, n-286), with narrow-cuneate, truncate leaves, with a fine seta terminating the mid-rib, and with setaceous, spreading stipules, sometimes 3 lines long.
- (b) Lindley's *P. montana*—*P. scabra* var. *montana* Bth.—the common Victorian form, with minute stipules, and leaves obovate or ovate, with no point, often with much recurved margins.
- (c) R. Brown's *P. biloba*—*P. scabra* var. *biloba*, Bth.—with leaves dilated and two lobed, with a short recurved point.

Brown's *scabra* and Lindley's plant are very distinct, but as there is no marked difference in the flowers they may be kept under *P. scabra*, especially as the varying forms of the var. *biloba* present graduated intermediates.

Section ACIPHYLLUM.

This section—3 species—is confined to Western Australia, and is distinguished by peculiar transversely reticulate leaves.

*Pultenaea aciphylla*, Benth—(*P. reticulata* Bth.)—with leaves ovate to linear-lanceolate, pungent. *Pultenaea aspalathoides*, Meiss, with leaves narrower than those of *P. aciphylla*, with a smaller calyx, larger bracteoles, and flowers crowded round with leaves.

*Pultenaea ochreatea*, Meiss, distinguished from the two former by having shorter and broader leaves, with no point, and nearly orbicular bracteoles.

Section EUCHILUS.

This section contains those species which have ternate or opposite leaves.

*Pultenaea obcordata*, Benth.

A West Australian species, with obovate, ternate, or opposite leaves, and a remarkable calyx, with its upper lobes almost orbicular, and its lower lobes linear and much shorter.



*Pultenaea rotundifolia*, Benth.

A West Australian species, with minute opposite leaves, rarely crowded, and flowers like those of *P. obcordate*, but on filiform pedicels often half-inch long.

*Pultenaea calycina*, Benth.

A West Australian species, with opposite or ternate leaves, like those of *P. retusa*, and with a calyx resembling that of *P. obcordata*, but with larger, more separated upper lobes.

*Pultenaea acuminata*, R. T. Baker.

A New South Wales species, with opposite leaves resembling those of *P. Gunnii*, with a very large calyx—about 4 lines—with a short tube, and long linear bracteoles fixed below the calyx tube.

Byalong Creek, N.S.W.

*Pultenaea spinulosa*, Benth.

A West Australian species, with opposite, crowded pungent leaves, reticulate below, and with a calyx having large, almost free, upper lobes, having subulate points, and with very narrow lower lobes.

*Pultenaea tenella*, Benth.

An Alpine species, with the habit and appearance of *P. paleacea* var. *sericea*, but having ternate, concave leaves, and a long calyx with lobes longer than the tube.

Alps of Victoria.

*Pultenaea Luehmanni*, Maiden.

A slender trailing plant, remarkable for its filiform, opposite branchlets, and distant leaves. Its terminal, head-like inflorescence distinguishes it from all other species of the section. Its nearest affinity is *P. tenella*, but that species has axillary flowers, and a larger and a differently shaped calyx.

Pipe Head, Hamilton Waterworks, Vic., Collected by the writer, Nov., 1904.

*Pultenaea cymbifolia*, J. M. Black.

A South Australian species, with small, decussate, convex mucronate leaves, rather crowded, and a silky calyx like that of *P. calycina*, with large upper lobes, united below the middle, and very small subulate lower lobes.

Kangaroo I., Andrews. A specimen was sent to the Herbarium in 1886 by Miss Brookes, Mt. Rugged to Victoria Springs, but was set aside by Mueller for determination later.

#### Section COELOPHYLLUM.

This section includes those species with alternate leaves, flattened, concave or terete.

##### *Pultenaea flexilis*, Smith.

An almost glabrous shrub with flat, or slightly concave leaves, glabrous calyx, with scarcely pointed lobes shorter than the tube, flowers axillary on rather long pedicels, with lanceolate, pointed bracteoles fixed on the tube at the base, and ovary glabrous with a few long hairs at the top.

Victoria, New South Wales.

Specimens from Clarence River, Beckler, are labelled "*P. flexilis* var. *mucronata*," p. 135, Fl. Aust. They exactly match specimens from Giggo Range, and the Dandenongs, Vic., since determined by Mueller as a variety of *P. juniperina*. These, as well as specimens from Pine Mount, N.E. District, Walter, having pubescent ovary, and bracts and bracteoles of *P. juniperina*, must be referred to that species.

##### *Pultenaea altissima*, F.v.M.

A species which has been wrongly united with *P. flexilis*, from which it differs in having its bracteoles ovate and free from the calyx, in which characters it agrees with *P. obovata* Benth., its nearest affinity. It has also its flowers in terminal umbel-like racemes, not axillary as in *P. flexilis*, and its leaves are linear-cuneate without points, and rarely over half-inch long. From *P. obovata* it differs in having a much smaller calyx with shorter lobes, and leaves narrower. We should follow Bentham in keeping it a distinct species.

New South Wales, Twofold Bay, and Upper Genoa River; probably occurs in East Gippsland.

##### *Pultenaea obovata*, Benth.

A New South Wales species, like *P. flexilis*, but with broad-ovate or broadly-cuneate leaves, two or three lines long, on rather long petioles, concave, light green above. Calyx, with lobes longer

than the tube, which distinguishes it from *P. altissima*, and with small ovate-orbicular bracteoles fixed below the calyx.

Moona River, Walcha, N.S.W.

*Pultenaea paleacea* Willd.

A species with linear leaves, long, scarious stipules, and dense terminal heads much covered with long imbricate bracts. The calyx is silky, and bracteoles are ovate, and are fixed on the calyx tube. Port Jackson, var. *obtusata*, Benth, has broader cuneate, leaves; var. *sericea*, Benth, the form common near Melbourne, has long, silky, white, scarious stipules and bracts.

Var. *robusta*, n.v. from Queensland (Gympie, Wellington Point), is a robust plant, differing only from var. *sericea* in having much larger leaves and flowers.

*Pultenaea Williamsoni*, Maiden.

= *P. paleacea*, var. *Williamsoni*.

This plant must now be referred to *P. paleacea*. It is of stronger and more robust growth, though of the same habit. The bracteoles are certainly wider and longer than in *P. paleacea*, but they are not constantly fixed at the very base of the calyx, being often just above the base. There are specimens from Wellington Point, Q., J. Wedd, which match the Victorian specimens in every respect, except that the bracteoles are smaller, and are fixed rather higher on the calyx tube.

From *P. stricta* this plant is far removed by its habit, its remarkably large stipules, its large leaves, its large persistent bracts, and the shape and position of its bracteoles.

Strathbogie, Vic., A. W. Yröland, Nov., 1904.

Wellington Point, Q., J. Wedd.

*Pultenaea stipularis*, Smith.

A showy New South Wales species, easily distinguished by its straight, linear leaves, and very long stipules, calyx lobes, bracts and bracteoles, the two last-named being hirsute with long hairs.

Port Jackson, Blue Mountains, N.S.W.

*Pultenaea glabra*, Benth.

A New South Wales species, with leaves like those of *P. dentata*, and with few bracts. It can readily be distinguished by its peculiar calyx, and the absence of all hairs. The calyx has nearly equal

lobes, acute and spreading, as long as the tube. Bracteoles broad-lanceolate fixed at the middle of the calyx tube.

Blue Mountains, N.S.W.

*Pultenaea dentata*, Labill.

A widespread species, with narrow-lanceolate concave leaves, and imbricate bracts, covering the dense heads in bud. The species is easily determined by its bracteoles, which are ovate or oblong, bifid, with a central subulate lobe, giving the summit a dentate-appearance.

New South Wales, Victoria, Tasmania.

*Pultenaea subumbellata*, HK.

A species with heads more capitate than subumbellate, and flat or slightly concave leaves, and a small hairy calyx, with hairy bracteoles well under the calyx. This last character, along with the absence of stipules, makes it a connecting link between *Pultenaea* and *Latrobea diosmifolia*, Bth. It has, however, strophiolate seeds.

New South Wales, Victoria, Tasmania.

*Pultenaea incurvata*, Cunn.

Like *P. subumbellata* in the absence of stipules, and the position of bracteoles, but distinguished from that species by its generally larger leaves, incurved at the tips often wrinkled below. Its bracts and bracteoles also are larger. Brown's specimens from Port Jackson are not *incurvata*, as labelled, but *subumbellata*.

New South Wales only.

*Pultenaea selaginoides*, F.v.M.

A Tasmanian species allied to *P. subumbellata*, having very minute stipules, shorter, thicker, and more concave leaves, almost imbricate. The calyx is small and glabrous, with blunt and almost equal lobes. Bracteoles are lanceolate, concave, fixed under the calyx. Flowers axillary, not capitate, as in *P. subumbellata*.

St. Paul's River, Tasmania.

*Pultenaea euchila*, D.C.

A plant that looks like a large form of *P. flexilis*, having larger flowers and leaves, and longer pedicels. It differs from *P. flexilis* in bracteoles, and calyx, the former being linear-subulate, and

inserted close under the calyx, and the latter being larger, with lobes longer than the tube, with the upper ones falcate.

Port Jackson, Hunter River, Clarence River, N.S.W.  
Brisbane, Ipswich, Qld.

*Pultenaea densifolia*, F.v.M.

A South Australian species, with very small, obovate concave leaves, with recurved tips, and flowers in axillary, sessile tufts, near the summit of the branches. Broad scarious bracts and bracteoles conceal the calyx, which is nearly three lines long, and has pungent-pointed lobes.

South Australia, Port Lincoln, Encounter Bay; doubtful from Victoria, "Murray Desert, F. Mueller."

*Pultenaea Campbelli*, Maiden and Betche.

A New South Wales species, near *P. glabra*, but with smaller and straighter leaves, and a slight pubescence on the small branches. It is easily distinguished from *P. glabra*, by its very small stipular bracteoles, fixed at the base of the calyx tube. These being all reddish brown, have the aspect of trifid bracteoles.

Walcha, N.S.W., J. F. Campbell, October, 1898.

*Pultenaea aristata*, Sieb.

A New South Wales species, with calyx and bracteoles like those of *P. humilis*, but its leaves are narrower, more concave, and are armed with a straight bristlet. The flowers are in dense terminal heads, unlike those of *P. humilis*, and are surrounded by reddish bifid bracts. The general aspect is that of *P. plumosa*.

Port Jackson, Appin, N.S.W.

*Pultenaea plumosa*, Sieb.

A species with narrow, concave leaves, without a bristle point. The broader leaved forms resemble *P. humilis* in foliage, and flower structure. The flowers are, however, in terminal heads, and the bracteoles are provided with broad stipules, are longer and broader, and are set under the calyx tube.

Port Jackson, Clarence River, Blackheath, N.S.W.

*Pultenaea Bauerleni*, F.v.M.

A New South Wales species, near *P. aristata*, but with leaves filiform, channelled above, granular rough, and with no bristle point.

The petioles are conspicuous, and the stipules are long, appressed, and somewhat downy. Upper calyx lobes are much united, and bracteoles are larger, oblong, mucronate, and fixed below the calyx tube.

Braidwood District, N.S.W., Bauerlen.

*Pultenaea elliptica*, Smith.

A New South Wales species, with leaves elliptical to ovate, the upper ones being long-petiolate. Stipules broad, appressed, the upper ones being ciliate with long hairs. Flowers are crowded in upper axils like those of *P. humilis*, having bracteoles under the calyx, reddish, scarious with small point; var. *thymifolia*, Bth. has leaves smaller and narrower, and slightly smaller flowers.

*Pultenaea rosea*, F.v.M.

A species with terete leaves, and linear lanceolate bracteoles fixed under the calyx tube. It is, however, quite unique among its congeners in having pinkish or mauve-coloured flowers.

Summits of Grampians (Mt. William).

*Pultenaea largiflorens*, F.v.M.

A plant with obovate to linear-cuneate leaves, more or less concave or folded, and recurved at the ends, silky below, with flowers with a silky calyx with much falcate upper lobes, which give the buds a hooked aspect. Bracteoles are lanceolate to ovate, slightly hairy on the back, and are fixed well up on the calyx tube.

Grampians and North-Western District, Vic.

var. *latifolia*, n.v. To this may be referred the South Australian forms, which have much wider leaves, generally ovate-oblong, flat or slightly folded, and sometimes obcordate emarginate (Clare, S.A., Tate). In some of these, where the leaves are crowded, they appear almost ternate.

From Wedderburn, W. W. Watts, and from New South Wales, per W. Baker, comes a form differing from the normal only in having calyx, bracts and bracteoles larger, the last-named being fixed rather lower on the calyx tube, near its base. It is exactly similar in habit and general appearance to the Wimmera forms of *P. largiflorens*, and can scarcely rank as a variety.

## EXPLANATION OF PLATES XIII., XIV., AND XV.

All drawings of leaves are natural size. Where the calyx is shown without reference letter it is natural size.

*a.* Upper and lower calyx lobes  $\times 2$ .

*b.* Bract  $\times 2$ .

*c.* Bracteole  $\times 2$ .

*d.* Ovary and style  $\times 2$ .